



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

more consonant with the facts and with prevalent psycho-physiological conceptions. Neither theory, however, has as yet been much used by professional psychologists, just as the immense mass of phenomena which the theories would account for, is left unnoticed in most of our psychological text-books. There can be little doubt that when these phenomena are seriously studied by professional psychologists we shall find that the conceptions upon which the science is now based are in need of extensive modification. "Mind" will no longer be a simple, indivisible substance upon which the brain acts and which in turn acts upon the brain, but will be regarded as an exceedingly complex dynamic system, every part of which is what it is only by virtue of the then constitution of all other parts—a system capable of partial or total disintegration and of pathological integration. It is only by recourse to some such conception as this that we can hope to explain these hitherto unknown phenomena, and bring the laws of mind in line with the laws of its material basis, the brain.—W. R. NEWBOLD.

---

## ARCHEOLOGY AND ETHNOLOGY.<sup>1</sup>

**Notes on Yucatan.**—The expedition sent out in January, by the University of Pennsylvania, had, for its object, the discovery of culture-layers in the caverns of Yucatan. It was thought that proof of man's antiquity in this part of Central America ought to be established by the discovery of refuse beds on the floors of conspicuous, easily-accessible caves, and a group of these shelters, situated in a mountain range, midway between many of the ruined cities, were chosen for exploration, as probably containing evidences of every race that ever visited the Peninsula.

When these cave floors were cut down to bed rock, and when the surface stratum of Maya occupation was sliced through, the work was expected to decide whether other earlier epoch-made refuse beds were to be encountered before the trenches reached rock bottom? This was the main question of the expedition, and the investigation which has, in a great degree, settled it, remains to be described in the report presently to be published by the University of Pennsylvania.

The thanks of the University are due Mr. John W. Corwith, of Chicago, for placing his time and means at their disposal in the under-

<sup>1</sup>This department is edited by H. C. Mercer, University of Pennsylvania.

taking. No less should acknowledgement be made to Dr. S. Weir Mitchell for advice and assistance in the outfit. Important cooperative aid has been furnished by Dr. William Pepper, President of the Association, by Dr. D. G. Brinton and Professor E. D. Cope; while the expedition owes its choice of the Sierra de Yucatan to the geographical help given it by Professor Angelo Heilprin, of the Academy of Natural Sciences of Philadelphia.

Certain notes, taken upon the journey, and not bearing directly upon the results of the work, may interest students. They recall an interesting conversation at Ticul, in February, with Herr Maler, the archeologist, who, coming to Mexico with the French expedition, has remained in Yucatan as a student of its antiquities, ever since.

Nothing, next to the stone work of the ruins themselves, so strikes the explorer in the peninsula as the remarkable predominance of pottery over all other relics of human handiwork. Herr Maler believes that much of the craft of the old earthenware might be relearned and recovered by a study of the work of the present Indian potters. Some of the pots were, he supposed, baked over the constricted calabash, now used as a water bottle, but on none were noticed traces of the potter's wheel. Pottery is found everywhere, but no hunting grounds have proved so rich as the *Chultun*, artificial, clock-shaped cisterns, built by the ancient Mayas, for catching rain-water. He who is staggered at the task of searching for sites of habitation in the stony, thorny, insect-haunted jungles, saves labor by climbing down into these round holes, so often seen in the woods and near mounds, now dry inside. When not repaired for modern use, their plastered floors generally contain two or more feet of rubbish, whence come many of the perfect vases, cups and jars which leave Yucatan. Chief among these is the wide-necked water jar, miniature models of which are sometimes found in the debris; the latter being probably playthings dropped by children into the cistern, and there lost beyond easy recovery in the deep water.

But the ruins themselves, by all means the most conspicuous relics of the past in Yucatan, visited and studied, perhaps, to exclusion of almost everything else, suggest a puzzling question which yet defies answer: How were the stones cut which surprise us by the richness of their ornament? Were the tools used random masses of similar material—chips of the old block, lavishly used to cut the parent stone? Were they the pitted hammer-stones of Mr. McGuire's theory, or chisels made of a harder rock? Were they implements of copper? Whatever any or all of them were, none of them have been discovered in

such a position as to prove their use. Yet, so immense is the amount of the Maya stone work, that the wonder increases as we think of it, and we fancy that the kind of tool we search for, battered and cast away, or well-worn on its cutting-edge, should be scattered about the ruins thicker than potsherds. The only reasonable explanation why not one single such tool has ever been found, is Herr Maler's—that the country is too much overgrown with thicket, too much obscured by uncultivable stone heaps to make it easy to find anything.

Stone quarries near certain of the ruins where the native limestone had evidently been blocked out for building had been noticed by Herr Maler, and, though a modern quarryman rarely loses tools at the quarry, it is fair to suppose that a careful and prolonged search among the chips at these places might disclose one or two specimens, at least, broken or whole, of the cutting tool sought for. If the implements used were stone, the chance of finding a fragment, at least, is increased, since breakage would have disqualified many specimens for the work. While much stone chipping was undoubtedly done at the ruins, during building, and while there are probably stone-cutters' work-shops undiscovered close by the crumbling walls of Uxmal or Labna, it seems that an overhauling of these isolated quarries in the woods would easiest settle the vexed question.

Herr Maler had found no traces of earlier peoples in Yucatan, such as in Asia and Europe meet the explorer at every turn. If a more ancient race of builders had preceded the Mayas, then the latter would have used again previously cut stones in their houses. But they did not; all the evidence showing that they originally dressed their building-stone from native rock. That the builders of the ruins lived chiefly on maize, beans, roots, melons and fruit he had little doubt. Flesh they rarely ate, and had no domestic animals except the dog. Of these he believed that there had been several indigenous kinds—one hairless, much used for food by the early Spanish explorers, existing still in Mexico, but now extinct in Yucatan. Another breed he supposed was hump-backed as is indicated by hump-backed figures of dogs, carved on the sixteenth century facade of Governor Montillo's house in Merida.

The explorer has not yet found much to astonish him in the graves of the ancient Mayas. Herr Maler says they lie thick near most mounds, rudely outlined with small rectangles of stone rather than indicated by earth heaps, so there is no way of discovering them when these little rows of stone become scattered, as is now generally the case, save at undisturbed spots in the remote wilds. Under them, skeletal, much decomposed, lie about three feet deep, sometimes in

boxes of undressed slabs, after the manner of the stone graves of Tennessee, but oftener in the open earth. If valuable trinkets of jadeite or nephrite and vases painted with hieroglyphs are not to be found in these tombs, we should hardly know where to look for them. But Herr Maler says that few graves reward search. Of hieroglyphs on vases he had seen several specimens, and showed me one such incised inscription at his house.

The mounds do not repay the explorer as they seem to promise. Instead of containing some tomb altar or enclosed chamber at their very centre, digging proves many of them to be heaps of loose boulders piled up for the purpose of erecting vaulted chambers on their sides and top. These ill-constructed structures have generally crumbled piecemeal into a loose talus that now forms the sides of the mounds, and the tumuli have become round, bramble-covered rubbish heaps, haunted by scorpions and garapatas. As a rule, with few exceptions, there are no graves inside the typical mound, which contains three tiers or steps of the buildings in question, each with its plastered terrace. In the debris of the old floors of these rooms, many interesting fragments of pottery, sometimes showing religious symbolism, sometimes imitating the forms of birds, monkeys and jaguars, have been found.

Of monkeys, Herr Maler believes that there are two or three species in Yucatan. One small earthen monkey head, which he showed me, was truer to nature and less grotesque than other miniature human busts in his collection. Of these latter, one hideous face had been presented to him by a Maya sorcerer at Bolon Chen, as a charm of great value. Obsidian flakes and flint knives, such as he showed me, were rare, since the modern Indians who found them, soon broke or lost them. The flint, of a creamy-white color, he had often found in the native state in swamps. Several earthen cloth stamps showed interesting curved designs, and two earthen whistles blew loud enough to have pleased a boatswain. Strange to say, he had but one arrowhead, but showed me several polished celts, probably of syenite or jadite, from Chichen-Itza, Cozumel, and other places. They were somewhat worn on the cutting edges, but, in my opinion, could not have been used to carve limestone.

Much light might be thrown on the history of the old inhabitants of Yucatan by a study of the modern Mayas, but Herr Maler supposed that the demonic beliefs and practices of the mystic brotherhood, known to students as Naguales, had faded away among the docile people of eastern Yucatan. The word *Nagua*, a familiar spirit in animal forms, is not used amongst them; nevertheless, I suspect that interesting results

would reward the investigator of this subject who first mastered the language and then gained the confidence of these people.

—H. C. MERCER.

**The Potters' Wheel in Yucatan.**—While in charge of the Corwith Expedition of the University of Pennsylvania in Yucatan last month (March, 1895), and while studying the process of pottery making by modern Maya Indians at Merida, I saw a female potter reproduce the chief conditions of the potters' wheel by turning a wooden disc set on a board with her toes. The clay rested on the disc and received the impress of her tools and fingers while revolving. Though the disc was called, in Maya, *Kabal*, it may be doubted whether it is an inheritance by these Indians from their pre-Columbian ancestors and not derived from Spain; in other words, whether its present use demonstrates the existence, till now undiscovered, of the potters' wheel in ancient America.

Doylestown, April 13, 1895.

—H. C. MERCER.

---

## MICROSCOPY.<sup>1</sup>

**Cytotropism of Cleavage Cells.**<sup>2</sup>—The principle of the method employed by Roux is very simple; but the experiments require to be carried out with care, in order to exclude as far as possible sources of error.

The eggs of *Rana fusca*, obtained from newly captured animals at the beginning of the normal period of spawning, furnished the best material for observation. Eggs obtained from animals kept separate and thus prevented from spawning at the normal time, proved to be quite unsatisfactory.

The phenomena of cytotropism are seen most readily between cells separated from the egg in the morula or blastula stage. The separation is effected by cutting or tearing the egg in an indifferent fluid, such as the white of a hen's egg, or a  $\frac{1}{2}$  per cent salt solution.

One requires for such experiments a small quantity (5–10 ccm.) of freshly prepared white of egg each day. This is prepared by filtering, in an uncut state, through a wad of cotton. The preparation must be perfectly clear.

The egg, in the morula or blastula stage, is first stripped of its gelatinous envelope, and placed on a circular glass plate, about 3 cm. in

<sup>1</sup> Edited by C. O. Whitman, University of Chicago. Contributions should be addressed to the editor.

<sup>2</sup> Wilhelm Roux, Ach. f. Entw'mech. d. Organismen, I, 1, pp. 44–48.